PHIN Preparedness

(DRAFT for discussion)

EARLY EVENT DETECTION

FUNCTIONAL REQUIREMENTS

AND PROCESS FLOWS

Version 1.0 Draft

10/12/2004

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1 INTRODUCTION

This document describes the Public Health Information Network (PHIN) functional requirements and general workflows for systems implemented to manage Early Event Detection. Early Event Detection (EED) is intended to support the earliest possible detection of events that may signal a public health emergency, the continued detection of subsequent cases of an event, the localization of the population affected, and support the investigation of the event etiology. Frequently, the initial detection is made by the astute care provider who recognizes the presentation and initiates a report. Public health reporting may be via a designated 24 X 7 call reporting system that distributes the information based on established call triage protocols, or care providers may file reports using web-based reporting systems. Initial detection case reporting is complemented by the automated electronic reporting of health related data from substantiated sources to detect aberrations in normal trends.

Events may be caused by acts of nature, accidents (such as chemical spills), or intentional acts including bioterrorism. Once an aberration is detected, EED must support the ability to localize the population and geographic areas affected, and support quick and appropriate response to reduce morbidity and mortality in the population. Because public health emergencies may occur across jurisdictions and across different areas of business (agriculture, water, veterinary), EED requires the ability to exchange data and support collaboration among jurisdictions and across all levels of public health.

This document provides minimum operational requirements necessary to support Early Event Detection and should in no way preclude incorporating additional functionality beyond what this document addresses.

2 REQUIREMENTS

The following requirements describe baseline functionality for any system implemented to support Early Event Detection:

2.1 Case Reporting: Case reporting includes reports for possible and confirmed cases. For early event detection, case reporting refers to direct avenues, such as 24 x 7 call reporting and web-based disease reporting, for reporting a case of a health event requiring urgent and immediate response.

2.2 Health Related "Secondary Use" Data Sources: Data sources should include diagnostic and potentially pre-diagnostic data, and should be selected to support detection of a broad array of public health emergencies*.*

2.3 Data Requirements and Linkages: EED analysis is performed on case reports for notifiable conditions as well as on secondary use data sources. In both cases, specific data characteristics are required and must include traceable linkages.

2.4 Data Receipt and Storage: Data collected from multiple sources must be accumulated and standardized to support analysis across data sources and integration with external systems.

2.5 Data Analysis: Established algorithms are applied to aggregated data from secondary use data sources to detect deviations from normal patterns.

2.6 Data Visualization and Analytical Reporting: Analytical results should be supported by visual representation (i.e., maps, graphs, and charts), and pre-defined and ad-hoc reporting at aggregate and detailed levels.

2.7 Alerts and Communication: EED should have the ability to issue alerts to partners that need to be notified of a possible or confirmed public health emergency, regardless of whether it is a notifiable disease or other public health emergency.

2.8 Consequence Management Operations: EED should initiate outbreak investigation when a case is reported. When evaluating health related data from secondary use data sources, EED must support the activities, roles and responsibilities to determine if an aberration constitutes a positive signal or a false alarm and respond with the steps to ensure appropriate response.

2.9 System Integration and Data Exchange: EED information must be exchangeable, based on established standards, between systems involved in the detection of, monitoring of, and response to public health emergencies.

2.10 Vocabulary Standards: Standard vocabulary lists and data structures have been defined by various organizations. Where they exist, partner communication and alerting systems should utilize them. As additional standards are defined, they should be accepted and implemented.

2.11 Operations: Personnel, roles, and responsibilities necessary to support all aspects of EED should be clearly defined.

2.12 System Security and Availability: Security of systems supporting EED includes the protection of data from corruption and access by unauthorized individuals, as well as the protection of an EED system itself from sabotage or other failure. There must be a backup plan for continuing activities when EED systems are unavailable.

2.13 Privacy: Patients and organizations must be protected from fraudulent and unauthorized use of their information.

2.1   CASE AND POSSIBLE CASE REPORTING

2.1.1 Call Reporting

The most direct and rapid means of immediate reporting is frequently a telephone. This requires a designated phone line to be available on a 24 x 7 basis.   When possible a health professional should be available to triage the call, but an alternative is for the call to be handled by an automated triage and response system.

2.1.1.1   EED must have 24 x 7 call-in capability for reporting cases and possible cases. This functional requirement is identified as a key performance measure for assessing preparedness and described in the PHIN *Key Performance Measures* document (*www.cdc.gov/phin/KPM.pdf*).

2.1.1.2   A well publicized telephone number must be available.

2.1.1.3   A call triage protocol must be defined to specify how calls should be handled and who should be contacted in the event of an emergency.

2.1.1.3.a   Systems supporting call triage should be able to implement call triage business rules and allow options for directing calls to designated

individuals based on the nature of the case or possible case being reported.

2.1.1.3.b   Options must be available for the caller to leave a message or to escalate the call by immediately contacting an individual.

2.1.1.3.c   Systems supporting call triage must identify primary and backup on-call responders and automatically initiate contact based on the call triage protocol.

2.1.1.3.d   A call down system must be available to contact lists of designated individuals dependent on the nature of the emergency.

2.1.1.3.e   The initial call receiver or automated system must verify that call-back by the on-call health professional occurred within a specified timeframe.

2.1.1.3.f   Systems supporting call triage must include immediate notification of the state health department in accordance with state/local agreements.

2.1.1.4   For urgent reports, the caller must be able to reach an on-call health professional within 20 minutes of initial receipt of the call. This functional requirement is identified as a key performance measure for assessing preparedness and described in the PHIN *Key Performance Measures* document (*www.cdc.gov/phin/KPM.pdf*).

2.1.1.5   Call reporting must be able to utilize a local public health directory to retrieve contact information for organizations and individuals to be contacted.

2.1.2 Web-based reporting

Web-based reporting requires an interface that is intuitive to use, and must be supported by the processes and personnel to monitor and initiate appropriate response to reported cases.

2.1.2.1   EED must be supported by the availability of web-based reporting for cases and possible cases of disease. This functional requirement is identified as a key performance measure for assessing preparedness and described in the PHIN *Key Performance Measures* document (*www.cdc.gov/phin/KPM.pdf*).

2.1.2.2   A web address, or URL, must be made broadly available to practitioners.

2.1.2.3   The web page(s) must be accessible inside of the firewalls of clinical environments.

2.1.2.4   Pages should not use Active-X or other technologies that may be disabled on clinical care workstations.

2.1.2.5   Report triage protocol must be defined to specify how web-based reports should be handled and who should be contacted in the event of an emergency.

2.1.2.5.a   The web-based solution must support urgency levels for reports.

2.1.2.5.b   Business rules must be supported to link on-call health professionals to emergency types.

2.1.2.5.c   Urgent reports must initiate immediate triage by automatically triggering contact with the appropriate on-call health professionals based on the business rules.

2.1.2.5.d   Primary and backup on-call health professionals must be established as a part of the report triage protocol.

2.1.2.5.e   The web-based solution must reattempt contact with the on-call health professional until the on-call health professional indicates that the message has been received.

2.1.2.5.f   Triage protocol must include immediate automated notification of state health department in accordance with state/local agreements.

2.1.2.6   Systems supporting web-based reporting should be able to implement business rules for triaging cases and possible cases to designated individuals based on the nature of the report.

2.1.2.7   The web-based reporting solution must integrate with a local public health directory that specifies communication profiles for on-call health professionals. Communication profiles indicate the contact method and preferred sequence of contact to be used for each individual (i.e. phone, fax, pager). Communication profiles are described in the *PHIN Preparedness Partner Communications and Alerting* document (www.cdc.gov/phin/pca.pdf), and more information about public health directories is included in the *PHIN Preparedness Cross Functional Components* document (www.cdc.gov/pin/cfc.pdf).

2.1.2.8   The web-based solution must be available 24 x 7, 365 days of the year.

2.1.2.9   Report triage must be able to reach an on-call health professional within 20 minutes of initial receipt of report designated as urgent. This functional requirement is identified as a key performance measure for assessing preparedness and described in the PHIN *Key Performance Measures* document (*www.cdc.gov/phin/KPM.pdf*).

2.1.2.10   Web-based reporting systems should support the requirements described in the Security section of the *PHIN Preparedness Cross Functional Components* document (www.cdc.gov/pin/cfc.pdf).

2.1.2.11   Web-based reporting systems should be configurable and support entry of reports for both national notifiable diseases and other identified diseases or conditions.

2.2 HEALTH RELATED "SECONDARY USE" DATA SOURCES

Substantiated health-related data sources can be used as the basis for analysis, including: diagnostic human data (i.e. lab test results, ambulatory care diagnoses, etc.), as well as potentially pre-diagnostic data (i.e., chief complaint data, lab test orders, over the counter drug sales). The data sources should be pre-existing and early event

detection should be a secondary use of the data rather than the principal reason for data entry wherever possible. The EED infrastructure should be able to support adopting more investigational data sources (school absenteeism reports, nurse call lines reports) as they are evaluated for effectiveness and value.

2.2.1   EED systems should accept data from multiple established sources, such as claims clearinghouses, hospital systems, clinical laboratories, health plans, integrated delivery systems, etc.

2.2.2   Wherever possible data should be pre-existing and available electronically. Because compliance with manual reporting (among other factors) has historically been poor, it is preferable that a data source not require manual data entry into an EED system.

2.2.3   Data should be collected frequently enough to support the needs of an EED system (at least daily), and should not introduce undo latency to the data source during its attempt to provide timely data.

2.2.4   EED requires the ability to access data that extends beyond the traditional 'case confirmed' or 'case suspected' data reported for notifiable diseases. This additional data should be collected primarily from diagnostic sources. Data may be collected from pre-diagnostic sources as they become available and are evaluated as compatible with existing requirements.

    2.2.4.1   Diagnostic data collected from sources such as lab results reports, or case reports should be used to support analysis and investigation. Sufficient diagnostic data must be collected from critical care sites to identify outbreaks of established or emerging diseases.

    2.2.4.2   Pre-diagnostic data are collected prior to a diagnosis being determined. Examples of these sources include laboratory test orders, CPT codes, over-the-counter drug sales, nurse call lines.

2.2.5   Examples of other investigative data sources that may be evaluated for EED include school and work absenteeism reports, and 911 calls.

2.2.6   Data sources that monitor changes in the environment (i.e., BioWatch) should be considered for EED in conjunction with confirmatory data sources. Ideal sources would represent major metropolitan areas where significant populations may likely be targeted.

2.2.7   Before use in EED systems, data sources must be evaluated for the following characteristics:

    2.2.7.1   Data must be available in near real-time in order to minimize the delay between an event and data accumulation.

    2.2.7.2   A baseline of one year's data is desirable to train algorithms for seasonal variations.

    2.2.7.3   Data collection and management issues will substantially affect the usefulness of data sources. The quality of collected data must be consistently accurate and maintainable.

2.2.7.4   Data sources should ideally meet accepted coding characteristics to ensure that the data support standardized formats and requirements.

2.2.7.5   Data sources should be representative of the population characteristics for the selected geographic area, and contain enough records to provide appropriate power for statistical analyses.

2.3   DATA REQUIREMENTS AND LINKAGES

The following high-level data requirements are divided into two sections, the first section lists data required primarily for case reporting, and the second section includes data requirements specific to secondary use data sources.

2.3.1   Case and Possible Case Reporting Data

2.3.1.1   Patient Data and Epidemiological Data

2.3.1.1.a   Confirmed cases and possible cases of identified preparedness conditions require that patient data include the patient's name, DOB, current gender, race, ethnicity, marital status, address, phone number and other contact information. Patient identifiers must also be provided to assist in any investigations which may ensue.

2.3.1.1.b   Possible cases identified for non-preparedness conditions may capture DOB, current gender, race, ethnicity and marital status. Patient identifiers must also be provided to allow the practitioner to provide updates to the possible case if it becomes confirmed.

2.3.1.1.c   The patient's profession should be captured.

2.3.1.1.d   To support investigation, organizational affiliations should be captured and may include day cares, nursing homes, health care organizations, restaurants, etc.

2.3.1.1.e   Possible vectors, and if the illness was food borne or water borne should be provided.

2.3.1.2   Condition Data

2.3.1.2.a   The suspect or confirmed disease condition must be captured and should adhere to standard vocabulary, if it exists.

2.3.1.2.b   The date of disease onset, symptoms and date of diagnosis must be captured.

2.3.1.2.c   If deceased, the date of death must be captured.

2.3.1.2.d   The dates of hospitalization should be captured, if the patient was hospitalized.

2.3.1.3   Lab Report Data

2.3.1.3.a   Laboratory reports must include the laboratory report date.

2.3.1.3.b   Lab report data must include the specimen identifier and collection date.

2.3.1.3.c   Laboratory tests must adhere to standard vocabulary, as referenced in *PHIN Preparedness Connecting Laboratory Systems* document

(*www.cdc.gov/phin/cls.pdf*) and test results should support multiple result types, such as text or numeric.

2.3.1.4   Treatment Data

2.3.1.4.a   Treatments delivered during the course of the event must be reported.

2.3.1.4.b   Treatments must include treatment dates, the treatment that was received, and the result of the treatment.

2.3.1.5   Organization and Reporter Data

2.3.1.5.a   Organization data should be stored for all organizations participating in case reporting for EED, organizations should include the jurisdiction where the case occurred, the reporting facility, the provider, laboratories, and treatment facilities.

2.3.1.5.b   The reporter's name and contact information (name, phone number, email address) must be captured so that next steps can be communicated by the health department.

2.3.2 Secondary Use Data

2.3.2.1   Patient Data

2.3.2.1.a   When available from the data source, demographic patient data should be collected to support localizing and characterizing an outbreak, including: age (but preferably not date of birth), gender, and zip code.

2.3.2.1.b   Patient data should be linked to the original data source and also to the supplying data source. For example, the data source may be a data processor such as a claims clearinghouse, but the clearinghouse data come from claims submitted by various hospitals and health plans. Both the clearinghouse and the hospital must be identified in the data and linked to the patient information.

2.3.2.2   Patient Event Data Linking

2.3.2.2.a   Each patient event (i.e., scheduled lab test, reported lab result, etc.) should be assigned an unambiguous, identifier which can be used to link back to the original data source as necessary for an appropriate public health investigation. This identifier should not include the patient's name, medical record number, or other identifier that is individually unique to the patient.

2.3.2.2.b   The data source must have the ability to link patient event data to clinical and environmental lab results and provide that linkage to support a public health investigation.

2.3.2.2.c   During the investigation of a possible outbreak, additional information may be requested from the data source to support linking test results, additional demographic and environmental characteristics, and associated data relative to the circumstances of the case to the event. To support treatment as a part of response and contact tracing, this supplementary data may include the patient's identifier if requested by

an authorized public health agency in the in the context of an investigation.

2.3.2.3　Organization data

2.3.2.3.a　Organization data should be stored for all organizations participating in EED (including data source providers, laboratories, hospitals, state and local health departments, providers, etc.).

2.3.2.3.b　Organization data must include: organization name, address (including street address, city, state, county, and zip code), primary contact name, technical contact for data transactions, data source contact, phone number, fax number, and organization type.

2.3.2.3.c　Standardized organization data will be defined to enable interoperable systems to report at local, state, and national levels. Moreover, the data will allow for the differences in organization structures (i.e., boroughs, MSAs, counties, departments, etc) from the multiple data sources.

2.3.2.3.d　Organization data standards should be implemented to facilitate the delivery of data from multi-jurisdictional sources to the appropriate recipients.

2.4　DATA RECEIPT AND STORAGE

2.4.1　Data collected from case and possible case reports must be aggregated, analyzed and used to characterize localize outbreaks.

2.4.2　Data collected from case and possible case reports should be standardized for comparison with secondary use data. Secondary use health data can be used to corroborate reported conditions.

2.4.3　Data collected from multiple secondary use data sources must be standardized prior to aggregation in a centralized data store (or data staging area).

2.4.4　Standardized, aggregated data may be transferred to a data warehouse designed to optimize analysis, extraction and reporting.

2.4.5　Data store structures used for EED data should be derivable back to the public health logical data model.

2.5　DATA ANALYSIS

2.5.1　Analytic capacity should support associations among secondary use data, case reports and possible case reports and recognize where the data validates or invalidates the existence of a possible signal.

2.5.2　Public health entities (PHEs) need to have the analytic capacity to process data and identify signals of possible outbreaks from large data sets that may include multiple data sources.

2.5.3　Analysis should account for expected seasonal fluctuations (i.e., allergies in the spring, flu-like symptoms in the winter).

2.5.4   The data should provide the ability to drill-down to a more detailed level from aggregated data to support evaluation of possible data anomalies.

2.5.5   Analysis should utilize methodologies that reduce false alarms and minimize end-user burden.

2.5.6   Historical trending and comparative analysis methods should be established to detect aberrations with sensitivity and specificity.

2.5.7   Aberration detection algorithms must be utilized, compared, tested, and refined based upon a thorough understanding and working knowledge of the interpretation of previous findings.

2.5.8   Data must support associating possible events to data in other sectors (i.e., agriculture, environment, etc.).

2.6   DATA VISUALIZATION AND ANALYTICAL REPORTING

2.6.1   Data must be visually represented using geospatial mapping and/or temporal charting.

    2.6.1.1   Geospatial mapping should be leveraged to display events in different geographic areas (zip, county, state, region, etc) by data source (i.e., BioWatch cities, states, or MSAs).

    2.6.1.2   Temporal charts, such as time series graphs, should be used to visualize how quickly is an event is spreading across geographic borders (zip, county, etc.) and should include environmental factors (i.e., wind directions and speed which affect the spreading of airborne agents).

2.6.2   An EED system should support the ability to perform a variety of ad-hoc queries for electronic data investigation, including reporting for single or multiple zip code areas, MSA comparisons, or national comparisons.

2.6.3   Automated reporting tools and pre-defined report templates should be supported to ensure consistency and quality.

2.6.4   Early Event Detection requires the ability to generate both detailed and aggregated reports.

2.6.5   Historical trending must provide a baseline against which new outbreaks may be compared.

2.6.6   An infrastructure must be established to support cross-jurisdictional investigations and may allow PHEs to view trends that extend beyond their jurisdiction.

2.7   ALERTS AND COMMUNICATIONS

Alerts and communications refer to information sent to organizations, jurisdictions, or individuals. Information may be sent by a variety of mechanisms depending on whether the information is sensitive or non-sensitive. Please refer to PHIN Preparedness Partner Communications and Alerting (www.cdc.gov/phin/pca.pdf) for more information on alerts and communications.

2.7.1   EED must be able to initiate alerts to key personnel involved in responding to public health emergencies.

2.7.2   EED must be able to interact with public health directories to support routing of data to partners based on profile information that includes the participant's name, role, and associated organizations. Please refer to the directory section of *PHIN Preparedness Cross Functional Communications* (*www.cdc.gov/phin/cfc.pdf*) for more information on directories.

2.7.3   Thresholds should be configurable based upon an outbreak type, level of potential risk to the population, and the existence of external factors that may prompt increased watchfulness.

2.8   CONSEQUENCE MANAGEMENT OPERATIONS

2.8.1   Processes and personnel must be in place to evaluate case reports and possible case reports delivered by phone or via web-based reporting.

2.8.2   Processes and personnel must be trained regularly on protocols established for triaging cases.

2.8.3   Guidelines must be established for determining whether a signal detected in secondary use data constitutes an outbreak or a false alarm.

2.8.4   Personnel must be trained and available to investigate aberrations to data patterns and follow established guidelines to determine if an event constitutes an outbreak or a false alarm.

2.8.5   Personnel must be trained to use analysis from secondary use data to corroborate or question data provided through case reports and possible case reports.

2.8.6   A list of primary and technical contacts for data sources and associated organizations should be readily available to support preliminary investigations to validate signals.

2.8.7   When an outbreak is identified, it must be immediately communicated to public health partners and other related parties involved in public health investigations via appropriate communication and alerting systems.

2.8.8   Personnel must be trained to operate in conjunction with investigation teams to detect additional cases, characterize and localize outbreaks.

2.9   SYSTEM INTEGRATION AND DATA EXCHANGE

Systems integration requirements specific to systems supporting EED are included in the section below and describe the types of data that EED systems should be able to send and receive. This section is limited to describing the types of data exchange that EED must support; not the requirements for transporting the data. Secure data transport requirements that span PHIN functional areas are separately defined and should be reviewed in the PHIN Preparedness Cross Functional Components Requirements document. (www.cdc.gov/phin/CFC.pdf)

2.9.1   Bi-directional, secure exchange of data with partner organizations is required to support public health investigations across all levels of public health. Some of the system integration and data exchange requirements described in this section have been identified as key performance measures. These measures should be reviewed in the *PHIN Key Performance Measures* document (*www.cdc.gov/phin/KPM.pdf*).

2.9.2   Data exchange must support investigations across jurisdictions and require collaboration at multiple levels (i.e., local, state, and national). In the event that a possible emergency extends beyond the Health Department's jurisdiction, the Health Department must be able to share case reports and possible case reports for preparedness conditions across jurisdictions and to multiple levels of public health.

2.9.3   EED messaging should adhere to PHIN messaging standards (HL7) and secure data transport (ebXML as provided by PHIN Messaging Services (PHIN MS) or compatible transport mechanisms) should be used when exchanging information between organizations and systems. (More information on PHIN MS is available at *http://www.cdc.gov/phin/messaging/index.htm.*)

2.9.4   Efficient data exchange must be established between the data sources, state and local health departments, and national health partners or data brokers.

     2.9.4.1   EED must be able to receive, parse and process messages regarding chief complaint for hospital admissions, emergency department visits and ambulatory care visits. This requirement has been identified as a key performance measure as described in the *PHIN Key Performance Measures* document (*www.cdc.gov/phin/KPM.pdf*).

     2.9.4.2   EED must be able to receive, parse and process messages regarding emergency department diagnosis. This requirement has been identified as a key performance measure as described in the *PHIN Key Performance Measures* document (*www.cdc.gov/phin/KPM.pdf*).

     2.9.4.3   When a state or local health department warrants further information in order to investigate a public health concern, it must be able to electronically request and receive that information from the data source either directly, or via the national broker.

     2.9.4.4   Upon receipt of a request for additional information, a data source must be able to electronically provide that information to the requesting party.

2.9.5   EED recommends that local jurisdictions associated with a metropolitan area receive all data for the metropolitan area.

2.9.6   Secure data exchange is required and should include appropriate security and privacy considerations, including data encryption and both destination and source authentication.

2.9.7   EED should integrate with conventional surveillance systems and corroborate surveillance findings.

2.9.8   EED should integrate with systems that support Incident Response to identify emergency response team members, assess prophylaxis, training and qualification necessary to respond to the event.

2.9.9   After possible cases are identified, systems supporting EED must be able to create and send "possible case" messages to support outbreak management (OM) by providing the data needed to identify affected persons and their exposure levels, as well as to enable case management and contact tracing. This requirement has been identified as a key performance measure as described in the *PHIN Key Performance Measures* document (*www.cdc.gov/phin/KPM.pdf*).

   2.9.9.1   The response team(s) should continue surveillance of the outbreak location to evaluate whether the response is effectively containing the event.

2.9.10   Linkages to detailed patient information should be leveraged in order to support public health investigations, treatment, and contract tracing as well as to contact those patients for follow-up exams and any necessary treatments.

2.10 VOCABULARY STANDARDS

It is recommended that standards be used across EED systems; however, vocabulary standards must be used when exchanging data. Vocabulary requirements specific to systems supporting EED are included in the section below. Vocabulary requirements that span PHIN functional areas are separately defined and should be reviewed in the PHIN Preparedness Cross Functional Components Requirements document. (www.cdc.gov/phin/CFC.pdf)

2.11 OPERATIONS

Operational requirements, such as system backup policies and procedures, continuity of operations, system monitoring, and employee training ensure that public health partners can effectively support activities in EED and other PHIN functional areas. Operational requirements that span PHIN functional areas should be reviewed in the PHIN Preparedness Cross Functional Components Requirements document (www.cdc.gov/phin/CFC.pdf).

2.11.1   EED must support 24 x 7 monitoring of secondary use health data for changes to the normal pattern. This requirement has been identified as a key performance measure as described in the *PHIN Key Performance Measures* document (*www.cdc.gov/phin/KPM.pdf*).

2.11.2   Systems supporting case and possible case reporting must be updated regularly to include diagnostic advances as they become available.

2.11.3   Call triage requires that health professionals are trained on use of systems supporting case and possible case reporting that is refreshed on a periodic basis.

2.11.4   Education must be developed and provided to health care providers and laboratorians concerning the systems available for reporting cases and possible cases, and how to use the systems.

   2.11.4.1   Education must include clear instructions on how to report a case or possible case.

   2.11.4.2   Education should include and differences between reporting diagnosed cases and suspicious possible cases, such as which fields are required and which fields are optional.

2.11.4.3   Requirements must be updated and provided to laboratorians and licensed health care providers (or subsets delineated by specialty or practice types) on an annual basis, minimally.

2.11.5 The health department should provide regular feedback on the steps initiated after a case report has been received.

2.11.6 Health care providers and laboratorians must be provided with the list of diagnosis types (suspected or confirmed), test orders and test results that should be immediately reported).

2.11.7   Systems supporting EED should be regularly tested and exercised to ensure that the systems operate properly under both routine and emergency conditions.

2.12 SYSTEM SECURITY AND AVAILABILITY

Systems supporting EED must be protected from sabotage or other system corruption. Security requirements that span PHIN functional areas should be reviewed in the PHIN Preparedness Cross Functional Components Requirements document. (www.cdc.gov/phin/CFC.pdf)

2.13 PRIVACY

Privacy requirements ensure that sensitive information is not accessible to unauthorized users. Privacy requirements are broadly defined because they span all PHIN functional areas. These requirements should be reviewed in the PHIN Preparedness Cross Functional Components Requirements document. (www.cdc.gov/phin/CFC.pdf)

3   PROCESS FLOWS

Process Flows are currently under development.